

Supplementary Appendix 1. Magnetic Resonance Imaging Parameters

| MRI Parameters | |
|---|--------------------------|
| MRI manufacturer | Siemens |
| MRI Model | Prisma |
| Field Strength | 3T |
| Coils | 6 channel phased array |
| Sequences used | T2, DWI, DWIb1600 |
| T2 sequence details | |
| Planes acquired | Axial, coronal, sagittal |
| Echo time (ms) | 101 |
| Number of Excitations | 2 |
| Reduction factor | 2 |
| Slice Thickness (axial) Voxel size (axial) (mm) | 3x0.8x0.8 |
| Typical scan time/sequence | 166 |
| DWI Sequence Details | |
| Plane acquired | axial |
| Pulse sequence | standard EPI |
| Echo time (ms) | 57 |
| B-values used (s/mm ²) | 50,200,400,600,1000 |
| Number of Excitations | 1,2,3,3,8,12 |
| ADC calculated b values | 50,200,400,600,1000 |
| Slice Thickness (axial) Voxel size (axial) | 3x1.8x1.8 |
| Typical scan time(s) | 378 |
| DWIb1600 Sequence Details | |
| Plane acquired | axial |
| Pulse sequence | segmented EPI (RESOLVE) |
| Echo time (ms) | 55 |
| B-values used (s/mm ²) | 0, 1600 |
| Number of Excitations | 1, 8 |
| Reduction factor | 2 |
| ADC calculated b values | No |
| Slice Thickness (axial) Voxel size (axial) | 3x1.6x1.6 |
| Typical scan time(s) | 404 |
| Bowel Relaxant | No |
| Endorectal coil | No |
| Total Exam time (min) | 30 |

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| T2_TSE_sag | |
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\\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\Prostate-2D-initial-Scout

TA: 0:18 PM: REF Voxel size: 1.6×1.6×6.0 mmPAT: Off Rel. SNR: 1.00 : tft

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | Off |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | Off |
| Load images to graphic segments | On |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | On |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|----------------------|
| Slice group | 1 |
| Slices | 7 |
| Dist. factor | 50 % |
| Position | L0.0 P30.0 H0.0 mm |
| Orientation | Sagittal |
| Phase enc. dir. | A >> P |
| Slice group | 2 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L16.0 P40.7 H0.0 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| Slice group | 3 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L16.0 P40.7 H0.0 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Phase oversampling | 30 % |
| FoV read | 300 mm |
| FoV phase | 100.0 % |
| Slice thickness | 6.0 mm |
| TR | 3.45 ms |
| TE | 1.53 ms |
| Averages | 1 |
| Filter | Distortion Corr.(2D) |
| Coil elements | BO1-3;SP1-8 |

Contrast - Common

| | |
|-------------------|----------|
| TR | 3.45 ms |
| TE | 1.53 ms |
| TD | 0 ms |
| Magn. preparation | None |
| Flip angle | 49 deg |
| Fat suppr. | Fat sat. |

Contrast - Dynamic

| | |
|-----------------|------------------|
| Averages | 1 |
| Averaging mode | Short term |
| Reconstruction | Magnitude |
| Measurements | 1 |
| Multiple series | Each measurement |

Resolution - Common

| | |
|-----------------------|---------|
| FoV read | 300 mm |
| FoV phase | 100.0 % |
| Slice thickness | 6.0 mm |
| Base resolution | 192 |
| Phase resolution | 100 % |
| Phase partial Fourier | Off |
| Interpolation | Off |

Resolution - iPAT

| | |
|----------|------|
| PAT mode | None |
|----------|------|

Resolution - Filter Image

| | |
|-------------------|-----|
| Image Filter | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |
| Prescan Normalize | Off |
| Normalize | Off |
| B1 filter | Off |

Resolution - Filter Rawdata

| | |
|-------------------|-----|
| Raw filter | Off |
| Elliptical filter | Off |

Geometry - Common

| | |
|------------------|---------------------|
| Slice group | 1 |
| Slices | 7 |
| Dist. factor | 50 % |
| Position | L0.0 P30.0 H0.0 mm |
| Orientation | Sagittal |
| Phase enc. dir. | A >> P |
| Slice group | 2 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L16.0 P40.7 H0.0 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| Slice group | 3 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L16.0 P40.7 H0.0 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| FoV read | 300 mm |
| FoV phase | 100.0 % |
| Slice thickness | 6.0 mm |
| TR | 3.45 ms |
| Multi-slice mode | Sequential |
| Series | Ascending |

Geometry - AutoAlign

| | |
|-----------------|---------------------|
| Slice group | 1 |
| Position | L0.0 P30.0 H0.0 mm |
| Orientation | Sagittal |
| Phase enc. dir. | A >> P |
| Slice group | 2 |
| Position | L16.0 P40.7 H0.0 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |

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Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Slice group | 3 |
| Position | L16.0 P40.7 H0.0 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Initial Position | Isocenter |
| L | 0.0 mm |
| P | 0.0 mm |
| H | 0.0 mm |
| Initial Rotation | 0.00 deg |
| Initial Orientation | Transversal |

Geometry - Navigator**Geometry - Tim Planning Suite**

| | |
|-------------------|------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 0 mm |
| Inline Composing | Off |

System - Miscellaneous

| | |
|---------------------|------------------|
| Positioning mode | REF |
| Table position | H |
| Table position | 0 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Save uncombined | Off |
| Matrix Optimization | Off |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | Default |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Tune up |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|-------------|
| Position | Isocenter |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 263 mm |
| R >> L | 350 mm |
| F >> H | 350 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|------------|
| B1 Shim mode | TrueForm |
| Excitation | Slice-sel. |

System - Tx/Rx

| | |
|-------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | High |
| Img. Scale Cor. | 1.000 |
| Reset | Off |

System - Tx/Rx

| | |
|---------------------|---------|
| ? Ref. amplitude 1H | 0.000 V |
|---------------------|---------|

Physio - Signal1

| | |
|-----------------|---------|
| 1st Signal/Mode | None |
| TR | 3.45 ms |
| Segments | 1 |

Physio - PACE

| | |
|---------------|-----|
| Resp. control | Off |
|---------------|-----|

Inline - Common

| | |
|----------------------|-----|
| Subtract | Off |
| Measurements | 1 |
| StdDev | Off |
| Save original images | On |

Inline - MIP

| | |
|----------------------|-----|
| MIP-Sag | Off |
| MIP-Cor | Off |
| MIP-Tra | Off |
| MIP-Time | Off |
| Save original images | On |

Inline - Composing

| | |
|-------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |

Sequence - Part 1

| | |
|------------------|------------|
| Introduction | On |
| Dimension | 2D |
| Reordering | Centric |
| Asymmetric echo | Allowed |
| Flow comp. | No |
| Multi-slice mode | Sequential |
| Bandwidth | 1002 Hz/Px |

Sequence - Part 2

| | |
|---------------|------------|
| Segments | 1 |
| RF pulse type | Normal |
| Gradient mode | Normal |
| Excitation | Slice-sel. |

Sequence - Assistant

| | |
|------|-----|
| Mode | Off |
|------|-----|

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\\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\Localiser@Center

TA: 0:13 PM: ISO Voxel size: 2.0×2.0×6.0 mmPAT: Off Rel. SNR: 1.00 : tti

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | On |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | On |
| Load images to graphic segments | On |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | Off |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|--|
| Slice group | 1 |
| Slices | 3 |
| Dist. factor | 50 % |
| Position | L25.4 A8.5 H10.9 mm |
| Orientation | Sagittal |
| Phase enc. dir. | A >> P |
| Slice group | 2 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L21.1 A30.3 H25.4 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| Slice group | 3 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L21.1 A6.3 H26.2 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Phase oversampling | 30 % |
| FoV read | 380 mm |
| FoV phase | 100.0 % |
| Slice thickness | 6.0 mm |
| TR | 3.24 ms |
| TE | 1.44 ms |
| Averages | 1 |
| Filter | Distortion Corr.(2D), Prescan Normalize |
| Coil elements | BO1-3;SP3-6 |

Contrast - Common

| | |
|-------------------|----------|
| TR | 3.24 ms |
| TE | 1.44 ms |
| TD | 0 ms |
| Magn. preparation | None |
| Flip angle | 49 deg |
| Fat suppr. | Fat sat. |

Contrast - Dynamic

| | |
|-----------------|------------------|
| Averages | 1 |
| Averaging mode | Short term |
| Reconstruction | Magnitude |
| Measurements | 1 |
| Multiple series | Each measurement |

Resolution - Common

| | |
|-----------------------|---------|
| FoV read | 380 mm |
| FoV phase | 100.0 % |
| Slice thickness | 6.0 mm |
| Base resolution | 192 |
| Phase resolution | 100 % |
| Phase partial Fourier | Off |
| Interpolation | Off |

Resolution - iPAT

| | |
|----------|------|
| PAT mode | None |
|----------|------|

Resolution - Filter Image

| | |
|-------------------|-----|
| Image Filter | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |
| Prescan Normalize | On |
| Unfiltered images | Off |
| Normalize | Off |
| B1 filter | Off |

Resolution - Filter Rawdata

| | |
|-------------------|-----|
| Raw filter | Off |
| Elliptical filter | Off |

Geometry - Common

| | |
|------------------|----------------------|
| Slice group | 1 |
| Slices | 3 |
| Dist. factor | 50 % |
| Position | L25.4 A8.5 H10.9 mm |
| Orientation | Sagittal |
| Phase enc. dir. | A >> P |
| Slice group | 2 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L21.1 A30.3 H25.4 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| Slice group | 3 |
| Slices | 5 |
| Dist. factor | 50 % |
| Position | L21.1 A6.3 H26.2 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| FoV read | 380 mm |
| FoV phase | 100.0 % |
| Slice thickness | 6.0 mm |
| TR | 3.24 ms |
| Multi-slice mode | Sequential |
| Series | Ascending |

Geometry - AutoAlign

| | |
|-----------------|----------------------|
| Slice group | 1 |
| Position | L25.4 A8.5 H10.9 mm |
| Orientation | Sagittal |
| Phase enc. dir. | A >> P |
| Slice group | 2 |
| Position | L21.1 A30.3 H25.4 mm |
| Orientation | Transversal |

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Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Phase enc. dir. | A >> P |
| Slice group | 3 |
| Position | L21.1 A6.3 H26.2 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Initial Position | L25.4 A8.5 H10.9 |
| L | 25.4 mm |
| A | 8.5 mm |
| H | 10.9 mm |
| Initial Rotation | 0.00 deg |
| Initial Orientation | Sagittal |

Geometry - Navigator**Geometry - Tim Planning Suite**

| | |
|-------------------|-------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 19 mm |
| Inline Composing | Off |

System - Miscellaneous

| | |
|---------------------|---------------------|
| Positioning mode | ISO |
| Table position | H |
| Table position | 19 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Save uncombined | Off |
| Matrix Optimization | Off |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | On - AutoCoilSelect |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Tune up |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|-------------|
| Position | Isocenter |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 263 mm |
| R >> L | 350 mm |
| F >> H | 350 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|------------|
| B1 Shim mode | TrueForm |
| Excitation | Slice-sel. |

System - Tx/Rx

| | |
|-------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | High |
| Img. Scale Cor. | 1.000 |

System - Tx/Rx

| | |
|---------------------|---------|
| Reset | Off |
| ? Ref. amplitude 1H | 0.000 V |

Physio - Signal1

| | |
|-----------------|---------|
| 1st Signal/Mode | None |
| TR | 3.24 ms |
| Segments | 1 |

Physio - PACE

| | |
|---------------|-----|
| Resp. control | Off |
|---------------|-----|

Inline - Common

| | |
|----------------------|-----|
| Subtract | Off |
| Measurements | 1 |
| StdDev | Off |
| Save original images | On |

Inline - MIP

| | |
|----------------------|-----|
| MIP-Sag | Off |
| MIP-Cor | Off |
| MIP-Tra | Off |
| MIP-Time | Off |
| Save original images | On |

Inline - Composing

| | |
|-------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |

Sequence - Part 1

| | |
|------------------|------------|
| Introduction | On |
| Dimension | 2D |
| Reordering | Centric |
| Asymmetric echo | Allowed |
| Flow comp. | No |
| Multi-slice mode | Sequential |
| Bandwidth | 1002 Hz/Px |

Sequence - Part 2

| | |
|---------------|------------|
| Segments | 1 |
| RF pulse type | Normal |
| Gradient mode | Normal |
| Excitation | Slice-sel. |

Sequence - Assistant

| | |
|------|-----|
| Mode | Off |
|------|-----|

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\\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\T2_TSE_sag

TA: 2:47 PM: ISO Voxel size: 0.6×0.6×3.0 mmPAT: 2 Rel. SNR: 1.00 : tse

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | On |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | On |
| Load images to graphic segments | On |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | Off |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|---|
| Slice group | 1 |
| Slices | 25 |
| Dist. factor | 0 % |
| Position | L22.7 P3.6 H35.1 mm |
| Orientation | Sagittal |
| Phase enc. dir. | H >> F |
| AutoAlign | --- |
| Phase oversampling | 100 % |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 7200.0 ms |
| TE | 101 ms |
| Averages | 2 |
| Concatenations | 1 |
| Filter | Distortion Corr.(2D), Prescan Normalize |
| Coil elements | BO1-3;SP4,5 |

Contrast - Common

| | |
|-------------------|-----------|
| TR | 7200.0 ms |
| TE | 101 ms |
| MTC | Off |
| Magn. preparation | None |
| Flip angle | 160 deg |
| Fat suppr. | None |
| Water suppr. | None |
| Restore magn. | Off |

Contrast - Dynamic

| | |
|-----------------|------------------|
| Averages | 2 |
| Averaging mode | Long term |
| Reconstruction | Magnitude |
| Measurements | 1 |
| Multiple series | Each measurement |

Resolution - Common

| | |
|-----------------------|-----------|
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| Base resolution | 320 |
| Phase resolution | 80 % |
| Phase partial Fourier | Off |
| Trajectory | Cartesian |
| Interpolation | Off |

Resolution - iPAT

| | |
|---------------------|------------------|
| PAT mode | GRAPPA |
| Accel. factor PE | 2 |
| Ref. lines PE | 32 |
| Reference scan mode | Self-calibration |

Resolution - Filter Image

| | |
|-------------------|-----|
| Image Filter | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |
| Prescan Normalize | On |
| Unfiltered images | Off |
| Normalize | Off |
| B1 filter | Off |

Resolution - Filter Rawdata

| | |
|-------------------|-----|
| Raw filter | Off |
| Elliptical filter | Off |

Geometry - Common

| | |
|------------------|---------------------|
| Slice group | 1 |
| Slices | 25 |
| Dist. factor | 0 % |
| Position | L22.7 P3.6 H35.1 mm |
| Orientation | Sagittal |
| Phase enc. dir. | H >> F |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 7200.0 ms |
| Multi-slice mode | Interleaved |
| Series | Interleaved |
| Concatenations | 1 |

Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Slice group | 1 |
| Position | L22.7 P3.6 H35.1 mm |
| Orientation | Sagittal |
| Phase enc. dir. | H >> F |
| AutoAlign | --- |
| Initial Position | L22.7 P3.6 H35.1 |
| L | 22.7 mm |
| P | 3.6 mm |
| H | 35.1 mm |
| Initial Rotation | 90.00 deg |
| Initial Orientation | Sagittal |

Geometry - Saturation

| | |
|---------------|------|
| Fat suppr. | None |
| Water suppr. | None |
| Restore magn. | Off |
| Special sat. | None |

Geometry - Navigator**Geometry - Tim Planning Suite**

| | |
|-------------------|-------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 35 mm |
| Inline Composing | Off |

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System - Miscellaneous

| | |
|---------------------|---------------------|
| Positioning mode | ISO |
| Table position | H |
| Table position | 35 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Save uncombined | Off |
| Matrix Optimization | Off |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | On - AutoCoilSelect |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Tune up |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|-------------|
| Position | Isocenter |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 263 mm |
| R >> L | 350 mm |
| F >> H | 350 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|----------|
| B1 Shim mode | TrueForm |
|--------------|----------|

System - Tx/Rx

| | |
|---------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | High |
| Img. Scale Cor. | 1.000 |
| Reset | Off |
| ? Ref. amplitude 1H | 0.000 V |

Physio - Signal1

| | |
|-----------------|-----------|
| 1st Signal/Mode | None |
| TR | 7200.0 ms |
| Concatenations | 1 |

Physio - Cardiac

| | |
|-------------------|-----------|
| Magn. preparation | None |
| Fat suppr. | None |
| Dark blood | Off |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Phase resolution | 80 % |
| Trajectory | Cartesian |

Physio - PACE

| | |
|----------------|-----|
| Resp. control | Off |
| Concatenations | 1 |

Inline - Common

| | |
|----------|-----|
| Subtract | Off |
|----------|-----|

Inline - Common

| | |
|----------------------|-----|
| Measurements | 1 |
| StdDev | Off |
| Save original images | On |

Inline - MIP

| | |
|----------------------|-----|
| MIP-Sag | Off |
| MIP-Cor | Off |
| MIP-Tra | Off |
| MIP-Time | Off |
| Save original images | On |

Inline - Composing

| | |
|-------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |

Sequence - Part 1

| | |
|---------------------|-------------|
| Introduction | On |
| Dimension | 2D |
| Compensate T2 decay | Off |
| Reduce Motion Sens. | On |
| Contrasts | 1 |
| Flow comp. | No |
| Multi-slice mode | Interleaved |
| Free echo spacing | Off |
| Echo spacing | 11.2 ms |
| Bandwidth | 200 Hz/Px |

Sequence - Part 2

| | |
|--------------------------|--------------|
| Define | Turbo factor |
| Echo trains per slice | 11 |
| Phase correction | Automatic |
| Acoustic noise reduction | None |
| RF pulse type | Low SAR |
| Gradient mode | Normal |
| Hyperecho | Off |
| WARP | Off |
| Red. EC sensitivity | Off |
| Turbo factor | 25 |

Sequence - Assistant

| | |
|----------------|----------------|
| Mode | Min flip angle |
| Min flip angle | 150 deg |
| Allowed delay | 30 s |

SIEMENS MAGNETOM Prisma

\\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\DIFF_EPI_MULTIB_tra

TA: 6:18 PM: ISO Voxel size: 1.8×1.8×3.0 mmPAT: Off Rel. SNR: 1.00 : epse

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | On |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | On |
| Load images to graphic segments | Off |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | Off |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|----------------------|
| Slice group | 1 |
| Slices | 24 |
| Dist. factor | 0 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| AutoAlign | --- |
| Phase oversampling | 0 % |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 4400 ms |
| TE | 57.0 ms |
| Concatenations | 1 |
| Filter | Distortion Corr.(2D) |
| Coil elements | BO2;SP4,5 |

Contrast - Common

| | |
|-------------------|---------|
| TR | 4400 ms |
| TE | 57.0 ms |
| MTC | Off |
| Magn. preparation | None |
| Fat suppr. | SPAIR |
| Fat sat. mode | Strong |

Contrast - Dynamic

| | |
|----------------|-----------|
| Averaging mode | Long term |
| Reconstruction | Magnitude |
| Measurements | 1 |
| Delay in TR | 0 ms |

Resolution - Common

| | |
|-----------------------|---------|
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| Base resolution | 110 |
| Phase resolution | 100 % |
| Phase partial Fourier | 6/8 |
| Interpolation | Off |

Resolution - iPAT

| | |
|-------------|------|
| Accel. mode | None |
|-------------|------|

Resolution - Filter Image

| | |
|------------------|----|
| Distortion Corr. | On |
|------------------|----|

Resolution - Filter Image

| | |
|---------------------|-----|
| Mode | 2D |
| Prescan Normalize | Off |
| Dynamic Field Corr. | Off |

Resolution - Filter Rawdata

| | |
|-------------------|-----|
| Raw filter | Off |
| Elliptical filter | Off |

Geometry - Common

| | |
|------------------|---------------------|
| Slice group | 1 |
| Slices | 24 |
| Dist. factor | 0 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 4400 ms |
| Multi-slice mode | Interleaved |
| Series | Descending |
| Concatenations | 1 |

Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Slice group | 1 |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| AutoAlign | --- |
| Initial Position | L20.4 P0.7 H23.7 |
| L | 20.4 mm |
| P | 0.7 mm |
| H | 23.7 mm |
| Initial Rotation | 0.00 deg |
| Initial Orientation | Transversal |

Geometry - Saturation

| | |
|---------------|----------------------|
| Sat. region | 1 |
| Thickness | 60 mm |
| Position | L0.0 A100.0 H19.0 mm |
| Orientation | Coronal |
| Sat. region | 2 |
| Thickness | 60 mm |
| Position | L0.0 P100.0 H19.0 mm |
| Orientation | Coronal |
| Fat sat. mode | Strong |
| Special sat. | None |

Geometry - Navigator**Geometry - Tim Planning Suite**

| | |
|-------------------|-------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 24 mm |
| Inline Composing | Off |

System - Miscellaneous

| | |
|------------------|-----|
| Positioning mode | ISO |
|------------------|-----|

SIEMENS MAGNETOM Prisma

System - Miscellaneous

| | |
|---------------------|------------------|
| Table position | H |
| Table position | 24 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Matrix Optimization | Performance |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | Default |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Standard |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|---------------------|
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 200 mm |
| R >> L | 200 mm |
| F >> H | 72 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|----------|
| B1 Shim mode | TrueForm |
| Excitation | Standard |

System - Tx/Rx

| | |
|---------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | High |
| Img. Scale Cor. | 2.000 |
| Reset | Off |
| ? Ref. amplitude 1H | 0.000 V |

Physio - Signal1

| | |
|-----------------|---------|
| 1st Signal/Mode | None |
| TR | 4400 ms |
| Concatenations | 1 |

Physio - PACE

| | |
|----------------|-----|
| Resp. control | Off |
| Concatenations | 1 |

Diff - Neuro

| | |
|------------------|------------------------|
| Diffusion mode | 3-Scan Trace |
| Diff. directions | 3 |
| Diffusion Scheme | Monopolar |
| Diff. weightings | 6 |
| b-value 1 | 0 s/mm ² |
| b-value 2 | 100 s/mm ² |
| b-value 3 | 200 s/mm ² |
| b-value 4 | 400 s/mm ² |
| b-value 5 | 600 s/mm ² |
| b-value 6 | 1000 s/mm ² |
| b-value 1 | 1 |

Diff - Neuro

| | |
|-----------------------|-----|
| b-value 2 | 2 |
| b-value 3 | 3 |
| b-value 4 | 3 |
| b-value 5 | 8 |
| b-value 6 | 12 |
| Diff. weighted images | Off |
| Trace weighted images | On |
| ADC maps | On |
| FA maps | Off |
| Mosaic | Off |
| Tensor | Off |
| Noise level | 0 |

Diff - Body

| | |
|-----------------------|------------------------|
| Diffusion mode | 3-Scan Trace |
| Diff. directions | 3 |
| Diffusion Scheme | Monopolar |
| Diff. weightings | 6 |
| b-value 1 | 0 s/mm ² |
| b-value 2 | 100 s/mm ² |
| b-value 3 | 200 s/mm ² |
| b-value 4 | 400 s/mm ² |
| b-value 5 | 600 s/mm ² |
| b-value 6 | 1000 s/mm ² |
| b-value 1 | 1 |
| b-value 2 | 2 |
| b-value 3 | 3 |
| b-value 4 | 3 |
| b-value 5 | 8 |
| b-value 6 | 12 |
| Diff. weighted images | Off |
| Trace weighted images | On |
| ADC maps | On |
| Exponential ADC Maps | Off |
| FA maps | Off |
| Invert Gray Scale | Off |
| Calculated Image | Off |
| b-Value >= | 0 s/mm ² |
| Noise level | 0 |

Diff - Composing

| | |
|------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |

Sequence - Part 1

| | |
|-------------------|-------------|
| Introduction | Off |
| Optimization | Min. TE |
| Multi-slice mode | Interleaved |
| Free echo spacing | Off |
| Echo spacing | 0.59 ms |
| Bandwidth | 1894 Hz/Px |

Sequence - Part 2

| | |
|---------------|-------------|
| EPI factor | 110 |
| RF pulse type | Normal |
| Gradient mode | Performance |
| Excitation | Standard |

Sequence - pTX Pulses

SIEMENS MAGNETOM Prisma

\\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\T2_TSE_tra

TA: 2:19 PM: ISO Voxel size: 0.7×0.7×3.0 mmPAT: 2 Rel. SNR: 1.00 : tse

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | On |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | On |
| Load images to graphic segments | On |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | Off |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|------------------------------------|
| Slice group | 1 |
| Slices | 28 |
| Dist. factor | 0 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Phase oversampling | 80 % |
| FoV read | 180 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 8060.0 ms |
| TE | 97 ms |
| Averages | 2 |
| Concatenations | 1 |
| Filter | Distortion Corr.(2D), Normalize |
| Coil elements | BO2;SP4,5 |

Contrast - Common

| | |
|-------------------|-----------|
| TR | 8060.0 ms |
| TE | 97 ms |
| MTC | Off |
| Magn. preparation | None |
| Flip angle | 160 deg |
| Fat suppr. | None |
| Water suppr. | None |
| Restore magn. | Off |

Contrast - Dynamic

| | |
|-----------------|------------------|
| Averages | 2 |
| Averaging mode | Long term |
| Reconstruction | Magnitude |
| Measurements | 1 |
| Multiple series | Each measurement |

Resolution - Common

| | |
|-----------------------|-----------|
| FoV read | 180 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| Base resolution | 256 |
| Phase resolution | 80 % |
| Phase partial Fourier | Off |
| Trajectory | Cartesian |
| Interpolation | Off |

Resolution - iPAT

| | |
|---------------------|------------------|
| PAT mode | GRAPPA |
| Accel. factor PE | 2 |
| Ref. lines PE | 32 |
| Reference scan mode | Self-calibration |

Resolution - Filter Image

| | |
|-------------------|-----|
| Image Filter | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |
| Prescan Normalize | Off |
| Normalize | On |
| B1 filter | Off |

Resolution - Filter Rawdata

| | |
|-------------------|-----|
| Raw filter | Off |
| Elliptical filter | Off |

Geometry - Common

| | |
|------------------|---------------------|
| Slice group | 1 |
| Slices | 28 |
| Dist. factor | 0 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | R >> L |
| FoV read | 180 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 8060.0 ms |
| Multi-slice mode | Interleaved |
| Series | Interleaved |
| Concatenations | 1 |

Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Slice group | 1 |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Initial Position | L20.4 P0.7 H23.7 |
| L | 20.4 mm |
| P | 0.7 mm |
| H | 23.7 mm |
| Initial Rotation | 90.00 deg |
| Initial Orientation | Transversal |

Geometry - Saturation

| | |
|---------------|------|
| Fat suppr. | None |
| Water suppr. | None |
| Restore magn. | Off |
| Special sat. | None |

Geometry - Navigator**Geometry - Tim Planning Suite**

| | |
|-------------------|-------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 24 mm |
| Inline Composing | Off |

SIEMENS MAGNETOM Prisma

System - Miscellaneous

| | |
|---------------------|---------------------|
| Positioning mode | ISO |
| Table position | H |
| Table position | 24 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Save uncombined | Off |
| Matrix Optimization | Off |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | On - AutoCoilSelect |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Tune up |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|-------------|
| Position | Isocenter |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 263 mm |
| R >> L | 350 mm |
| F >> H | 350 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|----------|
| B1 Shim mode | TrueForm |
|--------------|----------|

System - Tx/Rx

| | |
|---------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | High |
| Img. Scale Cor. | 1.000 |
| Reset | Off |
| ? Ref. amplitude 1H | 0.000 V |

Physio - Signal1

| | |
|-----------------|-----------|
| 1st Signal/Mode | None |
| TR | 8060.0 ms |
| Concatenations | 1 |

Physio - Cardiac

| | |
|-------------------|-----------|
| Magn. preparation | None |
| Fat suppr. | None |
| Dark blood | Off |
| FoV read | 180 mm |
| FoV phase | 100.0 % |
| Phase resolution | 80 % |
| Trajectory | Cartesian |

Physio - PACE

| | |
|----------------|-----|
| Resp. control | Off |
| Concatenations | 1 |

Inline - Common

| | |
|----------|-----|
| Subtract | Off |
|----------|-----|

Inline - Common

| | |
|----------------------|-----|
| Measurements | 1 |
| StdDev | Off |
| Save original images | On |

Inline - MIP

| | |
|----------------------|-----|
| MIP-Sag | Off |
| MIP-Cor | Off |
| MIP-Tra | Off |
| MIP-Time | Off |
| Save original images | On |

Inline - Composing

| | |
|-------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |

Sequence - Part 1

| | |
|---------------------|-------------|
| Introduction | On |
| Dimension | 2D |
| Compensate T2 decay | Off |
| Reduce Motion Sens. | On |
| Contrasts | 1 |
| Flow comp. | No |
| Multi-slice mode | Interleaved |
| Free echo spacing | Off |
| Echo spacing | 10.8 ms |
| Bandwidth | 199 Hz/Px |

Sequence - Part 2

| | |
|--------------------------|--------------|
| Define | Turbo factor |
| Echo trains per slice | 8 |
| Phase correction | Automatic |
| Acoustic noise reduction | None |
| RF pulse type | Low SAR |
| Gradient mode | Normal |
| Hyperecho | Off |
| WARP | Off |
| Red. EC sensitivity | Off |
| Turbo factor | 25 |

Sequence - Assistant

| | |
|----------------|----------------|
| Mode | Min flip angle |
| Min flip angle | 150 deg |
| Allowed delay | 30 s |

SIEMENS MAGNETOM Prisma

\\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\T2_TSE_cor

TA: 2:27 PM: ISO Voxel size: 0.6×0.6×3.0 mmPAT: 2 Rel. SNR: 1.00 : tse

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | On |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | On |
| Load images to graphic segments | On |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | Off |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|--|
| Slice group | 1 |
| Slices | 24 |
| Dist. factor | 0 % |
| Position | L22.7 P3.6 H35.1 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Phase oversampling | 80 % |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 6910.0 ms |
| TE | 101 ms |
| Averages | 2 |
| Concatenations | 1 |
| Filter | Distortion Corr.(2D), Prescan Normalize |
| Coil elements | BO1-3;SP4,5 |

Contrast - Common

| | |
|-------------------|-----------|
| TR | 6910.0 ms |
| TE | 101 ms |
| MTC | Off |
| Magn. preparation | None |
| Flip angle | 160 deg |
| Fat suppr. | None |
| Water suppr. | None |
| Restore magn. | Off |

Contrast - Dynamic

| | |
|-----------------|------------------|
| Averages | 2 |
| Averaging mode | Long term |
| Reconstruction | Magnitude |
| Measurements | 1 |
| Multiple series | Each measurement |

Resolution - Common

| | |
|-----------------------|-----------|
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| Base resolution | 320 |
| Phase resolution | 80 % |
| Phase partial Fourier | Off |
| Trajectory | Cartesian |
| Interpolation | Off |

Resolution - iPAT

| | |
|---------------------|------------------|
| PAT mode | GRAPPA |
| Accel. factor PE | 2 |
| Ref. lines PE | 32 |
| Reference scan mode | Self-calibration |

Resolution - Filter Image

| | |
|-------------------|-----|
| Image Filter | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |
| Prescan Normalize | On |
| Unfiltered images | Off |
| Normalize | Off |
| B1 filter | Off |

Resolution - Filter Rawdata

| | |
|-------------------|-----|
| Raw filter | Off |
| Elliptical filter | Off |

Geometry - Common

| | |
|------------------|---------------------|
| Slice group | 1 |
| Slices | 24 |
| Dist. factor | 0 % |
| Position | L22.7 P3.6 H35.1 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 6910.0 ms |
| Multi-slice mode | Interleaved |
| Series | Interleaved |
| Concatenations | 1 |

Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Slice group | 1 |
| Position | L22.7 P3.6 H35.1 mm |
| Orientation | Coronal |
| Phase enc. dir. | R >> L |
| AutoAlign | --- |
| Initial Position | L22.7 P3.6 H35.1 |
| L | 22.7 mm |
| P | 3.6 mm |
| H | 35.1 mm |
| Initial Rotation | 0.00 deg |
| Initial Orientation | Coronal |

Geometry - Saturation

| | |
|---------------|------|
| Fat suppr. | None |
| Water suppr. | None |
| Restore magn. | Off |
| Special sat. | None |

Geometry - Navigator**Geometry - Tim Planning Suite**

| | |
|-------------------|-------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 35 mm |
| Inline Composing | Off |

SIEMENS MAGNETOM Prisma

System - Miscellaneous

| | |
|---------------------|---------------------|
| Positioning mode | ISO |
| Table position | H |
| Table position | 35 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Save uncombined | Off |
| Matrix Optimization | Off |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | On - AutoCoilSelect |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Tune up |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|-------------|
| Position | Isocenter |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 263 mm |
| R >> L | 350 mm |
| F >> H | 350 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|----------|
| B1 Shim mode | TrueForm |
|--------------|----------|

System - Tx/Rx

| | |
|---------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | High |
| Img. Scale Cor. | 1.000 |
| Reset | Off |
| ? Ref. amplitude 1H | 0.000 V |

Physio - Signal1

| | |
|-----------------|-----------|
| 1st Signal/Mode | None |
| TR | 6910.0 ms |
| Concatenations | 1 |

Physio - Cardiac

| | |
|-------------------|-----------|
| Magn. preparation | None |
| Fat suppr. | None |
| Dark blood | Off |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Phase resolution | 80 % |
| Trajectory | Cartesian |

Physio - PACE

| | |
|----------------|-----|
| Resp. control | Off |
| Concatenations | 1 |

Inline - Common

| | |
|----------|-----|
| Subtract | Off |
|----------|-----|

Inline - Common

| | |
|----------------------|-----|
| Measurements | 1 |
| StdDev | Off |
| Save original images | On |

Inline - MIP

| | |
|----------------------|-----|
| MIP-Sag | Off |
| MIP-Cor | Off |
| MIP-Tra | Off |
| MIP-Time | Off |
| Save original images | On |

Inline - Composing

| | |
|-------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |

Sequence - Part 1

| | |
|---------------------|-------------|
| Introduction | On |
| Dimension | 2D |
| Compensate T2 decay | Off |
| Reduce Motion Sens. | On |
| Contrasts | 1 |
| Flow comp. | No |
| Multi-slice mode | Interleaved |
| Free echo spacing | Off |
| Echo spacing | 11.2 ms |
| Bandwidth | 200 Hz/Px |

Sequence - Part 2

| | |
|--------------------------|--------------|
| Define | Turbo factor |
| Echo trains per slice | 10 |
| Phase correction | Automatic |
| Acoustic noise reduction | None |
| RF pulse type | Low SAR |
| Gradient mode | Normal |
| Hyperecho | Off |
| WARP | Off |
| Red. EC sensitivity | Off |
| Turbo factor | 25 |

Sequence - Assistant

| | |
|----------------|----------------|
| Mode | Min flip angle |
| Min flip angle | 150 deg |
| Allowed delay | 30 s |

SIEMENS MAGNETOM Prisma

\\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\T1_VIBE_tra

TA: 0:14 PM: ISO Voxel size: 1.0×1.0×3.2 mmPAT: 2 Rel. SNR: 1.00 : fl

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | On |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | On |
| Load images to graphic segments | Off |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | Off |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|----------------------|
| Slab group | 1 |
| Slabs | 1 |
| Dist. factor | 20 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| AutoAlign | --- |
| Phase oversampling | 50 % |
| Slice oversampling | 25.0 % |
| Slices per slab | 32 |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.2 mm |
| TR | 4.59 ms |
| TE | 1.68 ms |
| Averages | 1 |
| Concatenations | 1 |
| Filter | Distortion Corr.(2D) |
| Coil elements | BO2;SP4,5 |

Contrast - Common

| | |
|----------------|------------|
| TR | 4.59 ms |
| TE | 1.68 ms |
| Flip angle | 15.0 deg |
| Fat suppr. | Q-fat sat. |
| Lines Per Shot | 40 |
| Water suppr. | None |
| Dixon | Off |

Contrast - Dynamic

| | |
|-----------------|------------------|
| Averages | 1 |
| Averaging mode | Short term |
| Reconstruction | Magnitude |
| Measurements | 1 |
| Multiple series | Each measurement |

Resolution - Common

| | |
|-----------------------|-----------|
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.2 mm |
| Base resolution | 192 |
| Phase resolution | 72 % |
| Slice resolution | 65 % |
| Phase partial Fourier | Off |
| Slice partial Fourier | Off |
| Trajectory | Cartesian |

Resolution - Common

| | |
|---------------|-----|
| View sharing | Off |
| Interpolation | Off |

Resolution - iPAT

| | |
|---------------------|------------|
| PAT mode | GRAPPA |
| Accel. factor PE | 2 |
| Ref. lines PE | 24 |
| Accel. factor 3D | 1 |
| Reference scan mode | Integrated |

Resolution - Filter Image

| | |
|-------------------|-----|
| Image Filter | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |
| Prescan Normalize | Off |
| Normalize | Off |
| B1 filter | Off |

Resolution - Filter Rawdata

| | |
|-------------------|-----|
| Raw filter | Off |
| Elliptical filter | Off |
| POCS | Off |

Geometry - Common

| | |
|--------------------|---------------------|
| Slab group | 1 |
| Slabs | 1 |
| Dist. factor | 20 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| Slice oversampling | 25.0 % |
| Slices per slab | 32 |
| FoV read | 200 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.2 mm |
| TR | 4.59 ms |
| Multi-slice mode | Sequential |
| Series | Ascending |
| Concatenations | 1 |

Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Slab group | 1 |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| AutoAlign | --- |
| Initial Position | L20.4 P0.7 H23.7 |
| L | 20.4 mm |
| P | 0.7 mm |
| H | 23.7 mm |
| Initial Rotation | 0.00 deg |
| Initial Orientation | Transversal |

Geometry - Saturation

| | |
|--------------|------------|
| Fat suppr. | Q-fat sat. |
| Water suppr. | None |
| Dixon | Off |
| Special sat. | None |

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Geometry - Tim Planning Suite

| | |
|-------------------|-------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 24 mm |
| Inline Composing | Off |

System - Miscellaneous

| | |
|---------------------|---------------------|
| Positioning mode | ISO |
| Table position | H |
| Table position | 24 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Save uncombined | Off |
| Matrix Optimization | Off |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | On - AutoCoilSelect |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Standard |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|---------------------|
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 200 mm |
| R >> L | 200 mm |
| F >> H | 103 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|-----------|
| B1 Shim mode | TrueForm |
| Excitation | Slab-sel. |

System - Tx/Rx

| | |
|---------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | Low |
| Img. Scale Cor. | 1.000 |
| Reset | Off |
| ? Ref. amplitude 1H | 0.000 V |

Physio - PACE

| | |
|----------------|-----|
| Resp. control | Off |
| Concatenations | 1 |

Inline - Common

| | |
|------------------------|----------|
| View sharing | Off |
| Flip angle | 15.0 deg |
| Measurements | 1 |
| Burn time-to-center | Off |
| Temporal interpolation | 1 |
| 3D centric reordering | Off |
| | null |

Inline - Inline

| | |
|----------------------|-----|
| Subtract | Off |
| Measurements | 1 |
| StdDev | Off |
| Liver registration | Off |
| Save original images | On |

Inline - MIP

| | |
|----------------------|-----|
| MIP-Sag | Off |
| MIP-Cor | Off |
| MIP-Tra | Off |
| MIP-Time | Off |
| Save original images | On |

Inline - Soft Tissue

| | |
|--------------|-----|
| Wash - In | Off |
| Wash - Out | Off |
| TTP | Off |
| PEI | Off |
| MIP - time | Off |
| Measurements | 1 |

Inline - Composing

| | |
|-------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |

Inline - MapIt

| | |
|----------------------|----------|
| Save original images | On |
| MapIt | None |
| Flip angle | 15.0 deg |
| Measurements | 1 |
| Contrasts | 1 |
| TR | 4.59 ms |
| TE | 1.68 ms |

Sequence - Part 1

| | |
|---------------------|------------|
| Introduction | Off |
| Dimension | 3D |
| Elliptical scanning | On |
| Asymmetric echo | Weak |
| Contrasts | 1 |
| Optimization | Min. TE |
| Multi-slice mode | Sequential |
| Bandwidth | 300 Hz/Px |

Sequence - Part 2

| | |
|-------------------------|-----------|
| RF pulse type | Normal |
| Gradient mode | Fast |
| Excitation | Slab-sel. |
| RF spoiling | On |
| Incr. Gradient spoiling | Off |

Sequence - Assistant

| | |
|---------------|-----|
| Mode | Off |
| Allowed delay | 0 s |

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| | |
|--|--|
| \\Research Funded\RESEARCH\MVPS1F -Study on HOLD\MVP_lastmod2017Jun28\DIFF_RESOLVE_b1600_tra | |
| TA: 6:44 PM: ISO Voxel size: 2.0×2.0×3.0 mmPAT: 2 Rel. SNR: 1.00 : resolve | |

Properties

| | |
|---|--------------------|
| Prio recon | Off |
| Load images to viewer | On |
| Inline movie | Off |
| Auto store images | On |
| Load images to stamp segments | Off |
| Load images to graphic segments | Off |
| Auto open inline display | Off |
| Auto close inline display | Off |
| Start measurement without further preparation | Off |
| Wait for user to start | Off |
| Start measurements | Single measurement |

Routine

| | |
|--------------------|----------------------|
| Slice group | 1 |
| Slices | 24 |
| Dist. factor | 0 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| AutoAlign | --- |
| Phase oversampling | 30 % |
| FoV read | 220 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 4630 ms |
| TE 1 | 55 ms |
| TE 2 | 87 ms |
| Concatenations | 1 |
| Filter | Distortion Corr.(2D) |
| Coil elements | BO2;SP4,5 |

Contrast - Common

| | |
|-------------------|---------|
| TR | 4630 ms |
| TE 1 | 55 ms |
| TE 2 | 87 ms |
| MTC | Off |
| Magn. preparation | None |
| Flip angle | 180 deg |
| Fat suppr. | SPAIR |
| Fat sat. mode | Strong |

Contrast - Dynamic

| | |
|----------------|------------|
| Averaging mode | Short term |
| Reconstruction | Magnitude |
| Measurements | 1 |

Resolution - Common

| | |
|-------------------------|---------|
| FoV read | 220 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| Base resolution | 110 |
| Phase resolution | 100 % |
| Phase partial Fourier | Off |
| Readout partial Fourier | 5/8 |
| Readout segments | 5 |
| Interpolation | Off |

Resolution - iPAT

| | |
|---------------------|--------------|
| PAT mode | GRAPPA |
| Accel. factor PE | 2 |
| Ref. lines PE | 72 |
| Reference scan mode | EPI/separate |

Resolution - Filter Image

| | |
|-------------------|-----|
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |
| Prescan Normalize | Off |

Resolution - Filter Rawdata

| | |
|------------|-----|
| Raw filter | Off |
|------------|-----|

Geometry - Common

| | |
|------------------|---------------------|
| Slice group | 1 |
| Slices | 24 |
| Dist. factor | 0 % |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| FoV read | 220 mm |
| FoV phase | 100.0 % |
| Slice thickness | 3.0 mm |
| TR | 4630 ms |
| Multi-slice mode | Interleaved |
| Series | Interleaved |
| Concatenations | 1 |

Geometry - AutoAlign

| | |
|---------------------|---------------------|
| Slice group | 1 |
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Phase enc. dir. | A >> P |
| AutoAlign | --- |
| Initial Position | L20.4 P0.7 H23.7 |
| L | 20.4 mm |
| P | 0.7 mm |
| H | 23.7 mm |
| Initial Rotation | 0.00 deg |
| Initial Orientation | Transversal |

Geometry - Saturation

| | |
|---------------|----------------------|
| Sat. region | 1 |
| Thickness | 60 mm |
| Position | L0.0 A100.0 H19.0 mm |
| Orientation | Coronal |
| Sat. region | 2 |
| Thickness | 60 mm |
| Position | L0.0 P100.0 H19.0 mm |
| Orientation | Coronal |
| Fat sat. mode | Strong |
| Special sat. | None |

Geometry - Tim Planning Suite

| | |
|-------------------|-------|
| Set-n-Go Protocol | Off |
| Table position | H |
| Table position | 24 mm |

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Geometry - Tim Planning Suite

| | |
|------------------|-----|
| Inline Composing | Off |
|------------------|-----|

System - Miscellaneous

| | |
|---------------------|---------------------|
| Positioning mode | ISO |
| Table position | H |
| Table position | 24 mm |
| MSMA | S - C - T |
| Sagittal | R >> L |
| Coronal | A >> P |
| Transversal | H >> F |
| Coil Combine Mode | Adaptive Combine |
| Save uncombined | Off |
| Matrix Optimization | Off |
| Coil Focus | Flat |
| AutoAlign | --- |
| Coil Select Mode | On - AutoCoilSelect |

System - Adjustments

| | |
|--------------------------|----------|
| B0 Shim mode | Standard |
| B1 Shim mode | TrueForm |
| Adjust with body coil | Off |
| Confirm freq. adjustment | Off |
| Assume Dominant Fat | Off |
| Assume Silicone | Off |
| Adjustment Tolerance | Auto |

System - Adjust Volume

| | |
|-------------|---------------------|
| Position | L20.4 P0.7 H23.7 mm |
| Orientation | Transversal |
| Rotation | 0.00 deg |
| A >> P | 220 mm |
| R >> L | 220 mm |
| F >> H | 72 mm |
| Reset | Off |

System - pTx Volumes

| | |
|--------------|----------|
| B1 Shim mode | TrueForm |
|--------------|----------|

System - Tx/Rx

| | |
|---------------------|----------------|
| Frequency 1H | 123.250212 MHz |
| Correction factor | 1 |
| Gain | High |
| Img. Scale Cor. | 3.000 |
| Reset | Off |
| ? Ref. amplitude 1H | 0.000 V |

Physio - Signal1

| | |
|-----------------|---------|
| 1st Signal/Mode | None |
| TR | 4630 ms |
| Concatenations | 1 |

Diff - Neuro

| | |
|-----------------------|------------------------|
| Diffusion mode | 3-Scan Trace |
| Diff. directions | 3 |
| Diffusion Scheme | Monopolar |
| Diff. weightings | 2 |
| b-value 1 | 0 s/mm ² |
| b-value 2 | 1600 s/mm ² |
| b-value 1 | 1 |
| b-value 2 | 9 |
| Diff. weighted images | Off |
| Trace weighted images | On |
| ADC maps | On |

Diff - Neuro

| | |
|-------------|-----|
| FA maps | Off |
| Mosaic | Off |
| Tensor | Off |
| Noise level | 0 |

Diff - Body

| | |
|-----------------------|------------------------|
| Diffusion mode | 3-Scan Trace |
| Diff. directions | 3 |
| Diffusion Scheme | Monopolar |
| Diff. weightings | 2 |
| b-value 1 | 0 s/mm ² |
| b-value 2 | 1600 s/mm ² |
| b-value 1 | 1 |
| b-value 2 | 9 |
| Diff. weighted images | Off |
| Trace weighted images | On |
| ADC maps | On |
| Exponential ADC Maps | Off |
| FA maps | Off |
| Invert Gray Scale | Off |
| Calculated Image | Off |
| b-Value >= | 0 s/mm ² |
| Noise level | 0 |

Diff - Composing

| | |
|-------------------|-----|
| Inline Composing | Off |
| Distortion Corr. | On |
| Mode | 2D |
| Unfiltered images | Off |

Sequence - Part 1

| | |
|------------------|-------------|
| Introduction | On |
| Dimension | 2D |
| Contrasts | 2 |
| Optimization | Min. TE |
| Multi-slice mode | Interleaved |
| Echo spacing | 0.34 ms |
| Bandwidth | 988 Hz/Px |

Sequence - Part 2

| | |
|--------------------|--------|
| EPI factor | 72 |
| RF pulse type | Normal |
| Gradient mode | Fast |
| Reacquisition mode | Off |

Sequence - Assistant

| | |
|------|-----|
| Mode | Off |
|------|-----|

Supplementary Appendix 2. Baseline patient characteristics based on PIRAD score among patients in the MRI arm

| Characteristic | PIRADS 1-2 | PIRADS 3 | PIRADS 4-5 |
|--|----------------|----------------|----------------|
| Age (years) (mean \pm standard deviation) | 67.9 \pm 7.3 | 65.3 \pm 7.0 | 69.3 \pm 7.3 |
| Ethnic Background (%) | | | |
| White | 157 (83.1%) | 29 (90.6%) | 21 (84.0%) |
| Black | 1 (0.5%) | 0 (0%) | 0 (0%) |
| Asian | 17 (9.0%) | 1 (3.1%) | 1 (4.0%) |
| Other | 14 (7.4%) | 2 (6.3%) | 3 (12.0%) |

MRI: magnetic resonance imaging